(2)

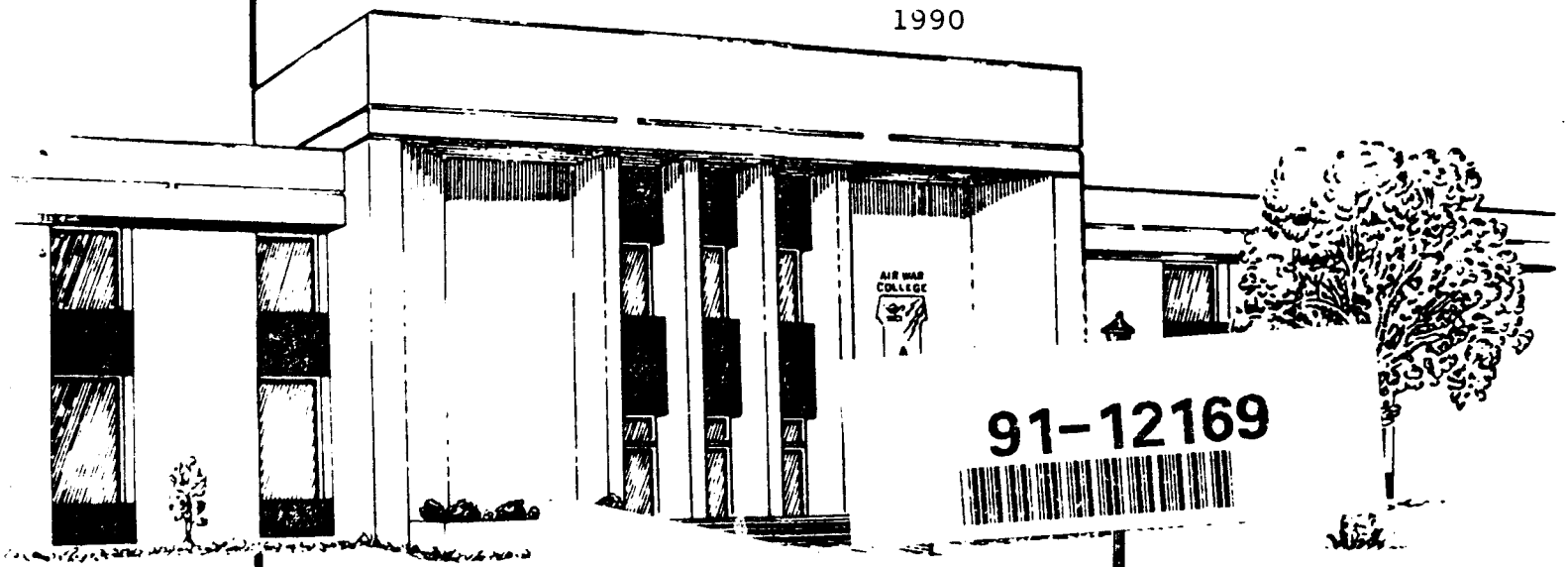
AIR WAR COLLEGE

RESEARCH REPORT

HOW DOES THE AIR FORCE CREATE EFFECTIVE ACCOUNTABILITY FOR INITIAL SPARES?

PAMELA J. HENSON, CIV, USAF

1990



91

AIR UNIVERSITY
UNITED STATES AIR FORCE
MAXWELL AIR FORCE BASE, ALABAMA

AIR WAR COLLEGE

AIR UNIVERSITY

HOW DOES THE AIR FORCE CREATE EFFECTIVE ACCOUNTABILITY FOR INITIAL SPARES?

by

Pamela J. Henson
USAF Civilian

A DEFENSE ANALYTICAL STUDY SUBMITTED TO THE FACULTY

IN

FULFILLMENT OF THE CURRICULUM

REQUIREMENT

Advisor: Colonel Richard A. Steeves

MAXWELL AIR FORCE BASE, ALABAMA

May 1990

TABLE OF CONTENTS

DISCLAIMER

This study represents the views of the author and does not necessarily reflect the official opinion of the Air War College or the Department of the Air Force. In accordance with Air Force Regulation 110-8, it is not copyrighted but is the property of the United States government.

Loan copies of this document may be obtained through the interlibrary loan desk of Air University Library, Maxwell Air Force Base, Alabama 36112-5564 (telephone [205] 293-7223 or AUTOVON 875-7223).

EXECUTIVE SUMMARY

TITLE: How does the Air Force create effective accountability for initial spares? AUTHOR: Pamela J. Henson, Civilian, USAF

The accountability for acquisition cost, schedule, and performance lies with the Program Manager. The Goldwater-Nichols Act reinforces this fact and calls for the streamlining of the system to support the Program Manager. Initial spares requirements are part of the acquisition baseline for which the Program Manager is responsible. However, the processes are not in place to allow the Program Manager to effectively manage this cost element. Initial spares have traditionally been managed in Air Force Logistics Command on a commodity basis and, therefore, the data systems and proceedures that exist today do not support the information that is needed on a weapon system basis. This paper addresses the different organizations involved in the traditional management of initial spares, the lessons learned in estimating the inital spares requirements baseline, and provides recommendations on how the processes should be changed in the future. If the Program Manager is to be held accountable for the delivery of a fully supported weapon system, then some major changes must be put in place. This paper presents several options as to how the processes should be changed.

BIOGRAPHICAL SKETCH

Pamela Henson has been involved in the estimating and financial management of weapon system acquisitions for the past twelve years. She started at Aeronautical Systems Division as a cooperative education student with Wright State University. Upon graduation with a Bachelor of Science in Finance and Accounting, she entered the financial management field supporting program management. In 1984 she earned an M.B.A. from The University of Dayton and in 1987 graduated from the Professional Military Comptroller School at Maxwell Air Force Base. Pamela became the Chief, Cost Analysis Division at HQ Air Force Logistics Command in 1987, where she received the Civilian Meritorious Service Metal. Pamela is a graduate of the Air War College, class of 1990.

I. INTRODUCTION

Over the past several years we have seen Program Managers (PM) tasked with accountability, in addition to responsibility and authority, in managing weapon systems. This tasking is visable in the implementation of the 1986 Goldwater-Nichols Act requiring clear communication and reporting channels and it is reemphasized in the ongoing Defense Management Review. Affordability of a weapon system is a key consideration in the resource allocation process and requiring accountability of that affordability is receiving even more attention today. An example is the B-2. When it is discussed, the first topic brought up is usually its price tag. Is it affordable for the capability it provides? The Program Manager (PM) is being held accountable for the cost of the program and must report on performance against baseline cost and content.

Title 10 U. S. Code 2434, reference (p) requires life cycle costs to be considered at each milestone review from Program Initiation/ Mission Need Decision (Milesone 0) through Major Upgrade/ System Replacement Decision (Milestone 5). The procedure which implements this is contained in Department of Defense Instruction (DoDI) 5000.2. The accountability of weapon system costs and responsibility of fielding a supportable system have been emphasized for years, however these are still issues at each milestone review and in each management review of a program. This paper addresses one item of weapon system cost, initial spares. I will show the complexity involved in estimating, budgeting, and managing initial spares. I question whether an

effective process has been provided to the PM by which initial spares requirements can be managed, and in return, the PM can fairly be held accountable.

Initial spares requirements have been affected by the many changes and improvements over the past ten years. The successful implementation of R&M 2000 (the program to better the reliability and maintainability of systems), warranty clauses used to incentivise contractors to improve the reliability of systems, and the study of different fielding concepts for support of weapon systems. All of these changes aim at keeping weapon systems currently fielded affordable from the start. We can not afford to push a system into the field without looking at its logistics tail and the burden of its cost. These changes, ccupled with possible future changes, must be considered when establishing the initial spares requirements and baselining this portion of the weapon system cost. The task is not simply looking at what was estimated for baseline initial spares in the past and continuing to use that methodology as the basis for future needs. The process of arriving at an estimate and managing to that estimate needs to change.

This paper is based on my experience in cost estimating and financial management. The past two years I was Chief of the Cost Analysis Division at Headquarters Air Force Logistics Command (HQ AFLC). In this position I served on the AFLC Cost Analysis Improvement Group (CAIG) which reviewed all estimates being submitted for the Defense Acquisition Board (DAB) Independent Cost Analysis (ICA). My examples of problems encountered

primariliy came from these reviews. Before that, I was a financial manager in Air Force Systems Command (AFSC) working for PMs. This is the perspective I carry with me when discussing the difficulties of trying to arrive at and manage to a cost baseline.

II. What is the definition of initial spares?

The definition of initial spares, as well as replenishment spares, was spelled out in a Deputy Secretary of Defense memorandum on 28 March 1985.[1] This memo was required because different definitions were used by the various services in accounting for total weapon system costs. The result prevented weapon system comparisons between services. The estimate would change as a function of changing the service responsible, not by any change in the program. Both Congress and the press were questioning the credibility of our estimates by comparing programs between services. With the introduction of many more joint programs (i.e. Advanced Tactical Aircraft, Advanced Tactical Fighter, Identification Frend or Foe, MILSTAR, etc.) it became necessary to ensure consistant reporting in the Selected Acquisition Reports to Congress.

The complete definition as stated in the DEPSECDEF memo is;

> Inital Spare Parts Initial spare parts will include those repairable comoonents, assemblies, or sub-assemblies required as initial stockage at all levels including the pipeline in support of newly fielded end items.

The implementation of this definition by AFLC increased the dollars accountable under the weapon system acquisition baseline. The definition used prior to 1985 included only those spares which supported aircraft operations for the first two years of delivery. Since major acquisition programs include many more years of acquisition than two, there was an increase to the initial spares total for each year following the second year.

One of the effects of this change was immediate "cost

growth" of current acquisition programs. Although comparisons between current programs from different services are now on an "apples to apples" basis, comparisons of Air Force current programs to Air Force historical programs become distorted. An example is that the B-1B program, $20.5 Billion (Fiscal Year 1981$) acquisition baseline (the strict cost-cap imposed by Congress) does not include the new definition of initial spares. In that case, three more years of spares would need to be added to place the spares on an equivilant definition to compare with the B-2 initial spares. Although the total life cycle cost of the system does not change with the new definition, the acquisition baseline has an artificial cost growth. In the long-run as more systems are reported using the new definition, the historical comparisons will become less important or the analysts using the data will make adjustments to make correct comparisons.

AFLC implementation of the new definition was not a simple matter. The definition was used to change the way AFLC budgeted for and executed the funds, but there was no change in the management systems which calculate the requirements.[2] Both the provisioning process and the D041 data system (for stocklisted items) used in calculating requirements did not change. Therefore, when estimating the initial spares requirements it is necessary to look at the total calculated requirements and manually adjust for the amount to be accounted for under initial spares vs. replenishment spares. Managing the manual adjustments is a computational nightmare during the "what-if" production quantity changes during the Program Objective Memorandum/ Budget

Estimate Submission cycle. Keeping a clear audit trail of changes between the HQ AFLC Material Management (MM) record and the PM's stated requirement also is next to impossible.

III. Who is responsible for initial spare requirements? For programming, budgeting, and execution?

Initial spare requirements are included in the acquisition baseline. Therefore, the System Program Office (SPO) PM is responsible for their management and cost control. The SPO PM is responsible for the programming and reporting of the initial spares requirements within the total life cycle cost from Milestone 0 through Program Management Responsibility Transfer (PMRT). PMRT normally occurs one to two years prior to Milestone IV. Inicial spares are a discrete element in the Selected Acquisition Report (DoDI 7000.3), if the program is required to report,[3] and they are a separate line on the budget submission, AF Form 1537. The baseline estimate from which the PM measures performance is established very early in the program and is refined as the program progresses through the milestone events. The specific methods for estimating initial spares will be addressed later in this paper.

At the initiation of a program, a baseline document is drawn up. At Milestone 0 this is the Mission Need Statement with any additional clairification that is needed. As the program evolves and is better defined, the baseline is refined to include pertinent management content. HQ AFSC Commander General Bernard Randolph stated, "A program baseline, is a contract signed by the user, developer, trainer and supporter that sets forth performance paramenters, cost and when 'rubber will hit the ramp'."[4] The baseline document keeps the focus on the capabilities which will be achieved within a given cost and schedule. "The baseline

is a solid management tool that limits instability and outlines the program director's authority to do the job."[5]

The baseline has been the documented communication between the PM and AFLC as to the level of funding required in initial spares and replenishment spares. In addition, the procurement budget submissions (AF Form 1537's) are provided to the AFLC organizations responsible for submitting the initial spares budget. The baseline document and budget submission should reflect the same initial spares requirements. In practice however, disconnects often occur due to budgetary exercises or what-if's. The budgetary what-if's are worked in conjunction with the AFLC Air Logistics Center (ALC) System Program Manager (SPM), and are forwarded to HQ AFLC when an exercise appears to become the new program/ budget profile.

AFLC is the command responsible to formally submit the initial and replenishment spares requirements to HQ AF/LEXW (Air Force Deputy Chief of Staff/ Logistics and Engineering, Weapon Systems Program Division). The normal sequence involved in establishing the baseline estimate for initial spares by weapon system starts prior to Milestone 2 (Full Scale Development). This is leadtime away from the Six Year Defense Plan (SYDP) in which the initial spares dollars are required. Initial spare requirements are "matched" to the procurement unit they support and, therefore, must have the procurement schedule and cost information to compute a time-phased estimate to support the SYDP.

HQ AFLC Material Management (MM) recommends a factor to

apply against flyaway cost. The PM's cost estimators then use the factor (or factors) in creating the baseline and the AF Form 1537 budget submission. The budget submission is forwarded to AFSC with the initial spares estimate included. AFSC reviews the budget requirements for the program, excluding the AFLC elements of cost. Items such as initial spares, peculiar support equipment, data, and training are under AFLC's responsibility, therefore AFSC reviews them only for relative size versus other programs. AFSC does not remain in the initial spares accountability loop from this point on.

The baseline document, including initial spares requirements, is coordinated with the ALC SPM and HQ AFLC. This coordination, in addition to the ALC SPM coordination in the AF Form 1537 budget submission, *should complete* a closed loop communication resulting in HQ AFLC/MM submitting the identical initial spares requirement by weapon system to HQ AF/LEXW. This assumption of the closed loop of communication is a poor one since many communication and coordination problems continue to plague this process.

IV. Who are the additional players involved in the spares process?

As stated above, the individual who must answer to the cost, schedule, and performance of the system is the SPO PM. He has on his staff a Deputy Program Manager for Logistics (DPML) who is the AFLC focal point within the program office. There is also the ALC SPM, who will receive the product once it's operational (at PMRT). The ALC SPM is assigned at the start of a program, as soon as depot responsibility has been selected. These three individuals (with their staffs) have the task of estimating the initial spares requirements, budgeting, tracking, and executing the funds in order to deliver a supported weapon system.

The initial spares process becomes a great deal more complicated as additional staff organizations get involved. The first staff involved is the ALC Material Management (MM) organization. The ALC SPM submits requirements for initial spares (which should match the PM's AF Form 1537) through this organization. ALC/MM is charged with submitting the total initial spares requirement for all programs at the ALC to HQ AFLC/MM. When the ALC attempts to adjust the ALC SPM's submission for expenditures or past performance, the result may be an estimate that can not be tracked back to the specific weapon system requirement. When the estimate reaches HQ AFLC/MM, they will also use all information available to make adjustments to the total request. Since not all programs are large enough to baseline, it is difficult to review disconnects in the data received by HQ AFLC/MM. The tracking of a weapon system initial

spares requirement from the ALC SPM to the ALC/MM budget and then to the HQ AFLC/MM budget is not easily accomplished and sometimes cannot be done. The ability to maintain one weapon systems' estimate, time-phased over eight years (the Presidents Budget plus the SYDP) is a major time-consuming challenge. Additional adjustments and what-if's prevents the Air Force from holding the PM accountable to his requirements estimate.

Continuing the process, HQ AFLC/MM submits the budget requirement to the HQ AF/LEXW. HQ AF/LEXW is the last link in the requirements programming chain. It is this office that is responsible for congressional testimony to the initial spares requirements. Because of the lack of, or confusion in the audit trail as discussed above, the HQ AF/LEXW individual responsible for this account can and does experience difficulty in trying to justify the requirements by weapon system. When cuts are made to the initial spares account, the "hurt" is shared across all weapon systems. For example, if one of the committees intends to cut the F-16 initial spares line in proportion to a procurement quantity cut, the initial spares dollar cut is spread against all programs at HQ AF/LEX. When the dollars are received by HQ AFLC/MM for execution, the correct amounts will be sorted out. In the meantime, the many PM's of other programs which shared in the spreading of the budget cut do not know what to manage as shortfalls or what to report as the budget available for their programs.

V. What additional complications occur in initial spares budgeting/reporting?

What are the complicating factors early in the program's life cycle when tracking should be the easiest with generic factors applied against flyaway cost? The first problem is the timing of the budget submissions. The required date of submission for the initial spares budget through HQ AFLC/MM is up to three months prior to the finalization of the AFSC budget. The result is that the initial spares factors are often applied against a one-year-old AFSC AF Form 1537 in the HQ AFLC/MM submission. In a period when program quantities are streched to the right, relying on a one-year-old budget form would program too much money in the near term years (buying spares for aircraft which have slipped). This disconnect results in the appearance of an unsupportable system. The large amount of dollars ask for in the initial spares account are not obviously linked to the acquisition quantities that were subsequently reduced. This again complicates the HQ AF/LEX representative's ability to justify the requirement as discussed in Section IV.

A second complicating factor is the fact that spares are not historically related to weapon systems. The hundreds of thousands of items managed by the ALCs are identified by National Stock Number. When a new weapon system enters the inventory, the goal is to use existing items. This cuts down on unique stocking, tracking and supply lines, thereby reducing costs and manpower. Today "...sixty-eight percent of the items are commmon to two or more weapon systems."[6] Therefore, the item manager of a

spare will be using the requirements of all his weapon systems when ordering and stocking his part. The costs are not directly assigned to the weapon system, but instead tracked to the part. The Air Force data systems were not designed to allocate costs by the weapon system so when the cost is required for historical purposes, an allocation must be made. This requires many assumptions to be made by the cost analyst and is often too time consuming or complex to achieve the accuracy that is desired. Instead, an attempt is made to capture the major cost drivers and factor the remainder to achieve the historical "actual" cost.

VI. Lessons Learned

HQ AFLC/ACC (Director of Cost, Comptroller) is the focal-point for the Independent Cost Analysis (ICA) on logistics costs for milestone reviews.[7] Their products are presented to the Cost Analysis Improvement Group (CAIG) and directly support the milestone decision by the Defense Acquisition Board (DAB). HQ AFLC/ACC has identified several problems which have consistantly surfaced during the past three years across many programs. Because easy solutions are not available to resolve these problems, I will highlight them in the following catagories; Models, Data Bases, and Baseline/Program Office Estimate. It will help if the PM, ALC SPM, and DPML are aware of these problems at the start of an estimate in order to help make the best management assumptions and prevent a delay in the estimate.

VI. A. MODELS

The most frequently used model for life cycle cost estimates by HQ AFLC/ACC is the Logistics Support Cost (LSC) Model. This accounting model calculates the expected spares and maintenance costs for hardware based on reliability, maintenance, operating scenario, and support concept inputs. The LSC model was developed in the 1970's as an approximation of the algrithms contained in the AFLC D041 system.[8] The D041 system is "the service's standard system to compute types and quantities of recoverable spares needed...Such data is reviewed by the item manager and becomes the basis for the spares budget."[9]

Other models which are derivitives of the LSC model have been used over the years due to specific needs that the LSC model originally did not account for. These include the STEP 3 model (owned by Air Force Acquisition Center) which will allow an avionics Line Repaceable Unit to be hosted on many different aircraft. An example of the use for the STEP 3 was the MARK XV Identification Friend or Foe baselining. Another derivative was the Munitions Model (MUNMOD). This model changes the flying hour component to compensate for the fact that missiles sit dormant and programmed maintenance is more a function of time than a function of operating hours.

The above models are ones used recently in Program Office Estimates (POE) to support Defense Acquisition Board Milestone reviews. In addition, Program Offices have been known to use some of the hundreds of other Life Cycle Cost (LCC) models and Operating and Support (O&S) models. Contractor developed trade-

off models for relative comparisons are required to buy the best systems at affordable costs. These models provide only relative savings and are not broken down by budget cost category. Models such as the General Electric PRICE LCC model are used extensively in the commercial world for decisions, but are not currently categorized by the Air Force budget cost elements. While all of these models are estimators of cost, they would not help the PM ensure that adequate resources are available in the correct budget elements and, therefore, should not be used in baselining a weapon system program.

Caution is called for when using a LCC or O&S model to support a program baseline or milestone decision. One must make sure the algorithms within the model estimate the spares correctly. As I stated above, the LSC model was originally written in the 1970's. There have been many changes in the way AFLC does business in the meantime such as the definition of what is included in initial spares. Other changes include maintenance concepts, warranties, and changes in Interm Contractor Support. A recent memo released on July 18, 1989 from SAF/ACC stated:

> Before models of this kind are used in weapon system estimates, the AF CAIG requires the model developer to either cross-check the new model with an accepted model or validate the new model by running it against a reference set of actual data...it is incumbant upon the model developer to collect the actual data needed to validate his or her model.10

As was discussed in Sections II and V, it is not an easy task to identify and accumulate actuals by weapon system so the validation of a model is not an easy task.

The AF CAIG emphasis on model development is also continued for model use. Having previously used a model to estimate does not guarantee that it estimated the cost elements correctly. The emphasis is on the ability to understand the calculations that the model uses to ensure that the costs are correctly distributed to the correct budget elements. Only through this effort will the AF CAIG be assured that adequate resources are available when the system is fielded, and that baseline breaches are adequately reported.

VI. B. Data Bases

Once the estimator has selected or built his spares model, it is then necessary to gather data. The data that is needed includes the system architecture, unit cost, failure paramaters, support concept, and operating senario. The typical data bases that exist for each weapon system include the Logistics Support Analysis (LSA), Life Cycle Cost Management (LCCM), Repair Level Analysis (RLA), Weapon System Cost Retrevial System, Visibility and Management of Operating and Support Cost, as well as SPO estimated unit procurement costs. Other sources of data include the Program Management Directive, Statement of Need, and program baseline document.

Lessons learned in data collection include that one data base cannot be selected without correlating it to others. For example, during the MILSTAR Terminal ICA estimate it was discovered that the contractor hired to develop and maintain the three data bases, LSA, LCCM, and RLA, was managing the three through three seperate departments and therefore the data could not be traced from one to the other. This led to the SPO making logistics decisions on one set of data while they would review the cost trade studies based on another set of data. This problem was recognized during the estimate by the contractor and action was being taken to merge the three into one department. This is not the exception. Many programs have fallen into this trap.

There is also a decision to make on what reliability data to use in the estimate. Should the reliability goals set by

contract be used, or if the contractor is striving toward stricter goals should those be used? The argument that the contractor is investing more Research & Development dollars into achieving a higher reliability than the contract requires leads us to consider using the contractors goal. The other part of the decision is that the contractor will not be penalized if he does not meet that goal, but only if he does not meet contract specification, so possibly contract specification should be used. The cost analyst should discuss the selection of individual reliability with the PM, ALC SPM, and DPML and know which value is best incorporated in the weapon systems' baseline cost.

VI. C. Baseline/Program Office Estimate

Once the program office makes a baseline estimate, it should be included in the baseline document. The baseline document is coordinated with the support and using commands and as a result, sufficient resources would then be set aside to support the weapon system. The ICA that is performed on the program at milestone decisions is required to be compared against the Program Office Estimate (POE) and the budget. This process works very smoothly for the AFSC elements of cost.

The AFLC cost element of initial spares is a very difficult one to compare between the ICA, POE, and budget. Differences in requirements between the ICA and POE are in the estimating methodology used, models used, selection the of data base, and the interpretation of the data. The PM, with the ALC SPM and DPML, must select what they believe the true requirement to be when the answers differ considerably.

The budget submission timing difference discussed in Section V makes it difficult to compare the requirements (ICA or POE) to the budget available. Another complication is if the program going for a milestone decision is a subset of another program, then it becomes impossible to identify the amount of budget that is available. For example, the Military Microwave Landing System Avionics Program was a subset of the Microwave Landing System and could not be individually broken out. The bottom line, no matter what the differences are, is that the DAB must be assured that sufficient resources are available for the weapon system and that it is an affordable system over the lifecycle.

There have been many acquisition baselines coordinated between the PM, AFSC, AFLC, and the using command. As I stated earlier, this should cause HQ AFLC to confirm the amount that is in the budget by weapon system for initial spares. A problem was identified several years ago when it was noted during milestone reviews that there were large disconnects between what was coordinated on in the baseline agreement and the HQ AFLC/MM budget set-aside for individual weapon systems. It was discovered that the AFLC coordination was thought (by AFLC only) to be on content and not a contract to set aside that amount of resources for the specific weapon system. Since this has been discovered, AFLC has not approved coordination on any acquisition baseline dollars. Procedures are being addressed to arrive at a workable solution, but without different data systems or actually "fencing" the dollars by weapon system the progress has been slow.

Why will AFLC not "fence" the dollars by weapon system? The key in the past to executable funding in initial spares has been the flexibility that has been allowed. As addressed in Demers article on spares, the item managers must remain flexible and able to adapt in real time in order to make sure we are funding the most critical items.[11] This flexibility within AFLC has caused many PMs concern as to if the budget they are accountable for will be there when they require it. I believe that we could maintain flexibility in the near-term budget year and budget year plus one, while still committing to baseline the SYDP period and beyond. This would enable the Air Force to hold the PM

accountable for management and performance through a coordinanted baseline agreement.

VII. CONCLUSION

In order to keep our weapon systems affordable, timely, and supported when delivered to the field, there must be one focal point, the PM, who has the tools to manage. The ability today for holding the PM, or anyone else for that matter, accountable for initial spares does not work. This is because the proper processes do not exist to allow weapon system accumulation and tracking of initial spares costs. The Air Force needs to address these processes and make changes.

The decision has been made that the Air Force will manage on a weapon system basis. The baseline document is the contract between the PM and AFLC for the initial spares requirements. In order to support these contracts (baselines), changes in data collection, funds availability reporting, and initial spares management systems must be made.

VIII. RECOMMENDATIONS

This paper pointed out the various phases in which the problems of accountability occur. The first problem appears to be in the number of individuals/staffs that have responsibility for the budgeting, tracking, and responsible execution of the initial spares account. The responsibility for effective management is meant to lie with the Program Manager. The Program Manager works with the Deputy Program Manager for Logistics and the System Program Manager located at the Air Logistics Center. These three individuals should control the final decisions on the estimated requirements, the impact of budget exercises, and the impact of budget cuts (or funds available). They should be aided by the ALC staffs and the HQ AFLC staffs when providing their estimate of requirements into the system. However, the staffs should not be allowed to apply an adjustment to the budget for past expenditures without a full audit trail for the Program Manager.

It will continue to be a fact of life that there are not enough resources to fund all of the requirements identified, but requirements should not be changed by anyone but the Program Manager. The differences between requirements, as coordinated on by all parties in the baseline document and yearly budget submissions, and the funds available should be shown in management reviews just as shortfalls/excesses are shown for the R&D and procurement accounts by weapon system. The funds available would therefore be the line which could be altered by the staff organization. This would keep the correct management

focus on working solutions to shortfalls or possibly adjusting the acquisition of a program so that it will be supportable when it reaches the field.

The first step necessary would be to start a listing of all the baselined programs initial spares requirements for all years through the Six Year Defense Plan. This could be accomplished by either the HQ AFLC staffs or the HQ AFSC staffs. Then an assessment of all programs which are not baselined should be added to arrive at the total initial spares requirements. The individual weapon system requirements should then be coordinated with the respective Program Manager. Then some requirements will be allocated to items that are common to more than one program. When requirements become excluded from the Program Manager's baseline requirement due to this process, an audit trail should be provided by the HQ AFLC staff as to where that requirement is captured. This would then provide all Program Managers with their requirements, timephased by year, through the Six Year Defense Plan, that HQ AFLC recognizes and will forward to the HQ AF/LEXW staff.

The next step is for HQ AFLC to identify the funds that are available against each of the weapon system programs. Although this may be an arbitrary process in the beginning, as the process developes it will become more of an automatic coordination during management reviews and budget reviews. The funds available feed-back to the Program Manager will allow him to make a timely assessment on budgetary impacts. This communication can also be forwarded to the HQ AF/LEXW representative to support the budget

justification process. Some of this activitiy is currently occurring on an individual basis, but it needs to be formalized into a process for all programs if it is to work for all Program Managers. This would also be the step that enables HQ AFLC to coordinate on baseline documents.

The difficulty with estimating requirements early in the program will not go away until a data system is put in place that gathers initial spares (and replenishment spares) on a weapon system basis. The requirements computation tapes from the D041 system are currently not being saved in a quality form or on a consistent calculation basis. This has caused historcal data by item to be sketchy. A system must be started to catch and track requirements by item or by weapon system over time. Without this there will not be the quality of estimate that is desired to hold the Program Manager accountable. Making an addition to the current Requirements Data Bank is a solution that should be studied. This is a requirement that needs to be justified and entered into the budget process for funding. Many past reviews have pointed to this problem of a data void, but the solution has not been assigned to one individual or office to hold them accountable. This is a long-term solution that the Air Force must start today.

The problem of using creditable models for costing spares is tied to the data void. In the short-run, before a data base is developed, the Logistics Support Cost (LSC) model will be reviewed for its calculations and spreading of budget requirements. HQ AFLC/ACC, in conjunction with the Air Force Cost

Center, is conducting this study. Once the validity of the LSC model is established, or adjustments are incorporated, it could be used as the baseline estimating methodology. This will serve to arrive at a common understanding between various program's requirements. This will only be a temporary solution until a reliable data base is developed and actuals by weapon system can be compared against the estimate.

Conflicting contractor data bases from which to choose estimating parameters is one that can be addressed immediately on every weapon system program. The DPML should take the lead in reviewing the parameters included in the LSA, RLA, LCCM, and LCC estimates provided by the contractor. These should be evaluated for which data best represents the weapon system and provided to the estimator performing the Program Manager's initial spares (and O&S) estimate. The responsibility for understanding the content of the data bases and the justification for what is contained in the estimate belongs to both the DPML and the estimator.

The near-term years of budget year and budget year plus one could still be treated with flexibility. The key to this would be communication of the weapon system requirements and executability of those requirements in the budget year. The Program Manager could adjust his out year requirements when he is kept informed as to the status of his funding and the reasons for not receiving funding. Also, by the reporting of the requirements vs. funds available throughout the management chain, it will be easier to view the impacts of near-term funds

available shifts from one weapon system program to another.

Fixing accountability of initial spares on a weapon system basis lies in changing the processes we use to manage today. The Air Force must take the steps discussed above to move toward the long-term solution. If we do not make these changes, the General Accounting Office and Congress will likely continue to question our ability to accurately predict and manage the supportability of new weapon systems. We will also continue to frustrate Program Managers in their ability to manage initial spare requirements.

REFERENCES

1. The Deputy Secretary of Defense Memorandum for Secretaries of the Military Departments, dated 28 March 1985, Subject: New Budget Definition for Initial Spare Parts.

2. HQ AF/LEXW letter dated 7 May 1985, Subject: New Definition of Initial Spares.

3. Department of Defense Instruction Number 7000.3, "Selected Acquisition Reports (SARs)", December 14, 1988.

4. Randolph, Gen. Bernard P., USAF, "Air Force Acquisition: Toward the Direct Route", Program Manager, September-October 1988, p. 4.

5. Ibid.

6. Demers, W. A., "Too Many Spares?", Military Forum, March 1989, p.63.

7. Air Force Regulation 173-11, Headquarters Logistics Command Supplement 1, "Independent Cost Analysis Program", May 22, 1987.

8. McCormick, Bob, "Availability Measures in the Logistics Support Cost Model", Estimator, Spring 1988, p.39.

9. Demers, p.63.

10. Assistant Deputy Comptroller, Cost and Economics, Memorandum for ALMAJCOM-SOA, dated 18 July 1989, Subject: Model Validation - INFORMATION MEMORANDUM

11. Demers, p.63-64.

GLOSSARY

AFLC	Air Force Logistics Command
AF/LEXW	Air Force Deputy Chief of Staff, Logistics and Engineering, Weapon Systems Program Division
AFSC	Air Force Systems Command
ALC	Air Logistics Center
ALC/MM	ALC Deputy Chief of Staff, Material Management
ALC/SPM	ALC System Program Manager
BES	Budget Estimate Submission
CAIG	Cost Analysis Improvement Group
DAB	Defense Acquisition Board
DoDI	Department of Defense Instruction
DPML	Deputy Program Manager for Logistics
HQ AFLC/ACC	Deputy Chief of Staff, Comptroller, Cost Analysis Directorate
HQ AFLC/MM	Deputy Chief of Staff, Material Management
ICA	Independent Cost Analysis
LCC	Life Cycle Cost
LCCM	Life Cycle Cost Management
LRU	Line Replaceable Unit
LSA	Logistics Support Analysis
MUNMOD	Munitions Model
O&S	Operating and Support
PM	Program Manager